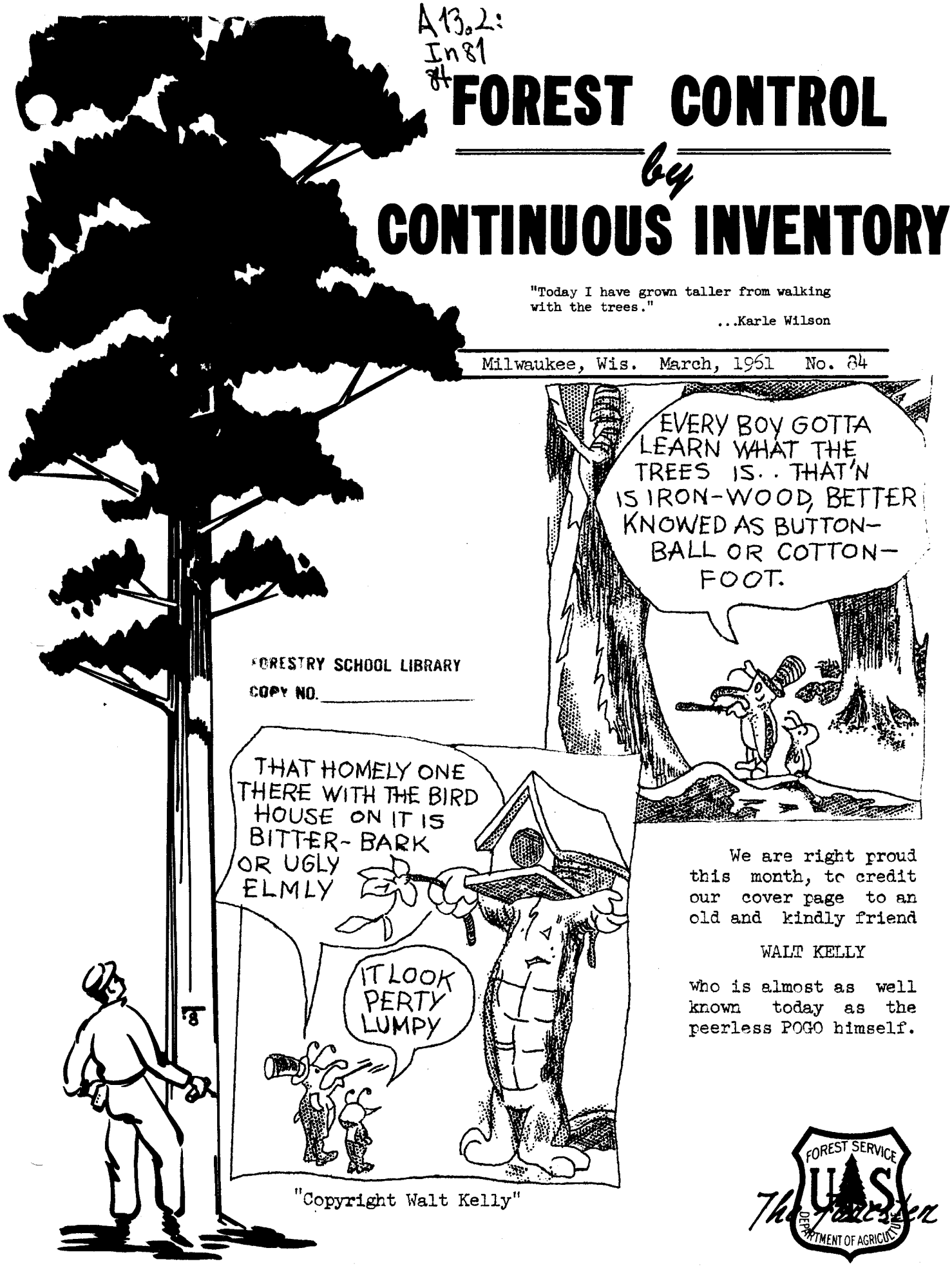
FOREST CONTROL by CONTINUOUS INVENTORY

"Today I have grown taller from walking with the trees."
...Karle Wilson

Milwaukee, Wis. March, 1961 No. 84



We are right proud this month, to credit our cover page to an old and kindly friend

WALT KELLY

who is almost as well known today as the peerless POGO himself.

The Forester
FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

LOG AND TREE GRADING FOR WOOD QUALITY

PART I

The Log Grading Rules

The purchase and sale of sawlogs and standing trees by grade is increasing in the Lake and Central States. Quality wood brings high prices in the log and tree market. It is common practice in stumpage appraisal and continuous forest inventory to grade standing hardwood sawtimber for quality, and there are many different ways to do this.

Since it is costly and difficult to give an accurate quality grade for both butts and uppers in standing sawlog trees, generally only a small segment of the usable length is graded. This segment of the tree is taken as the basis for its average wood quality.

A number of log and tree grading methods are extant in the North Central Region in particular, and all of them are backed by varying degrees of empirical knowledge and studies. Some of the methods realistically assess the quality of the sawlogs in the tree as of the time the grading is done. Others decide the grade as of the time when the log or tree will reach a specified length and top diameter. Combinations of current and prospective log and tree grades are also applied, but in all cases only a representative part of the tree is examined. From this part the approximate, average grade recovery for the whole tree is determined by the application of tables of average log grade recovery taken from experience or research studies.

It has been the custom with CFI to base tree quality on the log grading rules of the Forest Products Laboratory, Madison, Wisconsin. Developed more than 20 years ago by numerous studies, some of which were completed with the assistance of the Division of State and Private Forestry, these rules have a strong factual background. Tens of thousands of logs have gone into their construction. Closely related to lumber grading techniques in the requirements for clearcuttings between defects, the Forest Products Laboratory rules for factory log grades are exacting in their standards. It is scarcely possible for cruisers to differ in their assessment of grade in down logs or in the butt logs of standing trees, if the lengths of the clearcuttings are carefully measured, the top diameters of the logs are accurately determined, and the soundness and degrading defects are thoroughly observed and properly weighed.

We recommend the use of the Forest Products Laboratory factory log grading rules in the permanent plotwork of the CFI system. Next month's Newsletter will give a simple method of learning and applying the basic rules now enclosed with this letter.

Enclosures

CAL STOTT, Forester
U. S. Forest Service - Region 9

HARDWOOD LOG GRADES FOR STANDARD LUMBER

GRADE FACTORS*		SPECIFICATIONS							
		Log Grade 1			Log Grade 2				Log Grade 3
Position in tree		Butts only	Butts & uppers		Butts & uppers				Butts & uppers
Minimum diameter (inches)		[1]13-15	16-19	20+	[2]11	12+			8+
Minimum length (feet)		10+	10+	10+	10+	8-9	10-11	12+	8+
Clear cuttings** on each of the 3 best faces	Min. length (feet)	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	--
	Min. yield in face length	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Max. sweep and crook allowance (percent of gross volume)		15			30				50
Max. cull and sweep allowance (percent of gross volume)		[3]40			[4]50				50

*End defects, although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D1737.

**A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth the surface of the log as divided lengthwise.

[1]Ash and basswood butts can be 12 inches if otherwise meeting requirements for small No. 1's.

[2]10-inch logs of all species can be No. 2 if otherwise meeting requirements for small No. 1's.

[3]Otherwise No. 1 logs with 51-60 percent cull can be No. 2.

[4]Otherwise No. 2 logs with 51-60 percent cull can be No. 3.

USDA-SCS-MILWAUKEE, WIS 1956

HARDWOOD LOG SPECIFICATIONS FOR TIES AND TIMBERS

GRADE FACTORS		SPECIFICATIONS
Position in tree		Butts and uppers
Scaling diameter (inches)		8+
Length, without trim (feet)		8+
Clear cuttings		No requirements: not graded on cutting basis.
Max. sweep allowance		One-fourth d.i.b. of small end for half logs, and one-half d.i.b. for logs 16 feet long.
Sound surface defects permitted	Single knots	Any number, if none has an average collar* diameter that is more than one-third of log diameter at point of occurrence
	Whorled knots	Any number, provided the sum of the collar diameters does not exceed one-third the log diameter at point of occurrence.
	Holes	Any number not exceeding knot specifications if they do not extend more than 3 inches into the contained tie or timber.
Unsound surface defects** permitted		Any number and size if they do not extend into contained tie or timber. If they extend into contained tie or timber, they shall not exceed size, number, and depth of limits for sound defects.

*Knot collar is the average of the vertical and horizontal diameters of the limb or knot swelling as measured flush with the surface of the log.

**Interior defects are not visible in standing trees. They are considered in grading cut logs. No interior defects are permitted except one shake not more than one-third the width of the contained tie or timber, and one split not more than 5 inches long.